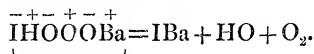


the metallic peroxide being reduced by the polar particle of oxygen, as in other cases it might be by hydrogen itself. The proof that such a chemical relation really exists between the particles of oxygen, would be found in the proportion in which the two substances were reduced. The paper contains an elaborate inquiry on this point in the case of the chloride and of the oxide of silver; the general result of which is, that these substances are capable of being reduced in various but definite proportions, according as the conditions of temperature and mass are varied. All the terms of this series of ratios have not been determined; but it is ascertained that the relative loss for the two substances proceeds by intermittent steps, and that the whole action is confined between the limits of the ratio of equality on the one hand, and the purely catalytic action (in which the metallic oxide would suffer no reduction) on the other; neither of which limits is ever absolutely reached.

The constant loss of oxygen from the decomposing bodies in equal equivalent proportions is found in the reaction of the peroxide of barium with iodine in the presence of water. In this experiment, the water in the presence of the iodine is reduced just as the peroxide in the other experiments; but here the loss is constant, and the change may be represented thus:—



In this experiment no oxide of iodine whatever is formed, and the author considers that the formation of the oxygen itself is here the corresponding fact to the formation of the iodous acid, which takes place when iodine acts upon baryta.

4. "The Calling of the Sea." By Richard Edmonds, Jun. Communicated by W. J. Henwood, Esq., F.R.S.

In this communication the author states, that in the neighbourhood of Penzance there is often heard inland a murmuring or a roaring noise, locally termed "the calling of the sea," which on some occasions extends to the distance of eight or ten miles; whereas, at other times, although to a person on the shore the sea may be equally loud, and the state of the weather may appear equally favourable, no sound from the sea can be heard at the tenth part of that distance. From his observations during six years, he concludes, that when the calling of the sea proceeds from a direction different from the wind, or when it occurs during a calm, it is usually followed within six hours by a wind from the quarter from which it is heard.

5. "On the Structure of the Membrana Tympani in the Human Ear." By Joseph Toynbee, F.R.S. &c. &c.

In this paper the membrana tympani is described as consisting of the following layers, which are quite distinct from each other, both as regards their structure and functions:—